DOCUMENT RESUME

ED 274 114 EC 190 287

AUTHOR	Seidenberg, Pearl L.
TITLE	Getting the Gist: Relating Text Processing Research to Reading and Writing Instruction for Learning Disabled Secondary Students. Long Island University Transition Project Learning How to Learn: A High School/College Linkage Model to Expand Higher Educational Opportunities for Learning Disabled Students. Position Paper Series: Document No. 5.
INSTITUTION	Long Island Univ., Brooklyn, NY.
SPONS AGENCY	Office of Special Education and Rehabilitative Services (ED), Washington, DC.
PUB DATE	[86]
NOTE	15p.; For related documents, see EC 190 285-288.
PUB TYPE	Information Analyses (070)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Content Area Reading; *Learning Disabilities; *Reading Comprehension; Reading Difficulties; *Reading Processes; Reading Research; Reading Strategies; Secondary Education; Special Education; Writing Difficulties; *Writing Processes
IDENTIFIERS	*Text Organization

ABSTRACT

Many learning disabled secondary school students have difficulties with text organization in both subject area reading and expository writing. Problems may include difficulty in following the main ideas in text, recognizing the main text topics and their interrelationships, or recognizing the subordinate and superordinate ideas and examples. Often, recall ability is poor and writing skills are inadequate. Several concepts derived from current theories and research in text processing can provide a guide for the improvement of instruction in both reading and writing for learning disabled secondary school students. The microstructure model of text comprehension allows students to transform sentences into their underlying microstructure propositions which express the surface structure information of the passage. Research on the skills involved in summarizing a text has shown that an important aspect of text processing involves the ability to identify main topics of the text and their interrelatedness. Another line of research has emphasized the central role of topic structure processing in reading and writing. Text structure or organization has been found to have a major role in the recognition and recall of main ideas in text. Research has also indicated that the recognition and use of objective textual cues to the relevant information in a text contributes to the identification of the important ideas and their interrelatedness. Instructional programs based on these concepts have the potential for improving both the comprehension and recall of expository material and the quality of expository writing for learning disabled secondary students, thus enhancing their opportunities for success in academic settings. A list of 31 references is appended. (CB)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED274114

GETTING THE GIST: RELATING TEXT PROCESSING RESEARCH TO READING AND WRITING INSTRUCTION FOR LEARNING DISABLED SECONDARY STUDENTS

Pearl L. Seidenberg

Long Island University Transition Project
Learning How to Learn: A High School/College Linkage Model
To Expand Higher Educational Opportunities for Learning Disabled Students

This publication was prepared with funding support
from the Office of Special Education and Rehabilitative Services
U. S. Department of Education

EC 190 287

Position Paper Series:
Document No. 5

BEST COPY AVAILABLE

The abilities to comprehend and formulate expository writing are essential for the learning disabled (LD) secondary students' success in secondary and post-secondary education settings. It is proposed that the concepts derived from current theories and research in text processing and the procedures for providing direct instruction outlined in text processing training studies can provide a guide for the improvement of instruction in both reading and writing for LD secondary students.

The studying of expository textual material in order to gain specific information for later use such as taking a test or writing a paper requires the use of a number of metacognitive text processing strategies. The strategies are metacognitive in nature because the studying activity is student-directed and students must be able to monitor their own acquisition, recall and production of information. Because most texts are organized in systematic ways, the learner's ability to recognize and use the organizational structure of texts is important for both reading and writing tasks.

Many learning disabled (LD) secondary students have difficulties with text organization in both subject area reading and expository writing. They have difficulty following the main ideas in text; they may not recognize the main text topics and their inter-relationships; or realize that a main topic is supported by superordinate and subordinate ideas or examples. Because they lack the strategies for recognizing and organizing or interrelating the relevant factual information, their ability to recall information they have read is often poor. Similarly, their expository writing skills are inadequate and also reflect an inability to build good organization into their written essays or compositions (Alley, Deshler and Warner, 1979; Carlson and Alley, 1981).

Although, by high school entry, many LD students have mastered decoding to the extent that they can read expository textual materials with an acceptable level of fluency, their comprehension and organizational problems are a severe block to reading, studying, and writing (Deshler, Lowrey and Alley, 1979; Reid and Hresko, 1981). Without direct instruction in reading for meaning and recall, and writing for organizational coherence,

the academic prognosis for these students in secondary and post-secondary education settings is poor (Schumaker, Deshler, Alley and Warner, 1983; Zigmond, Sansone, Miller, Donahue and Kohnke, 1986).

The concepts derived from current theories and research in text processing can inform instructional practice in reading and writing for secondary LD learners. Until recently, the research in text processing had not been precisely defined in either the literature or in instructional practices resulting in contradictory findings across a number of studies (Baumann, 1982). More recently, however, the research has become less heterogeneous and better integrated because of the focus provided by the macrostructure model of text comprehension proposed by Kintsch and Van Dijk (1978).

According to this model as readers progress through a text, they transform sentences into their underlying 'microstructure' propositions which express the surface structure information of the passage. At the same time, through the application of a series of decision rules, or macrorules, they are deleting, integrating and condensing the microstructure propositions into a few 'macropropositions' which express the gist or important content (i.e., the summary) of the text. Also, the reader's purposes or goals direct the way in which the rules for condensing the text are applied. Propositions in a text are designated as important or unimportant based on two criteria which are textual relevance and contextual relevance. Textual relevance is based on what the author considered important and is signaled by cues in the text structure while contextual relevance is based on the reader's interests and background knowledge. Fluent readers are able to make effective use of both textual and contextual criteria.

A number of researchers have investigated the processing of these different components of expository text. Because most texts are organized around a small set of main ideas or topics, an important aspect of text processing involves the ability to identify a text's main topics and their interrelatedness. Because this ability underlies both comprehension and summarization a number of studies have also investigated the skills involved in summarizing a text (Lorch and Lorch, 1985; Brown and Day, 1983).

One important line of research has emphasized the central role of topic structure processing in reading and writing. This research has suggested that the ability to recognize the main topics and the significant supporting information as well as the interrelations among a text's main topics affects the coherence of an internal topic structure representation which is central to the comprehension process (Miller and Kintsch, 1980; Lorch and Lorch, 1985). Similar models of the writing or composing process have been characterized by a number of writing researchers (Flower and Hayes, 1980; Bereiter, 1980). Factors affecting the ability to recognize main topics and to attend to salient text information relevant to identification of topic structure have been studied.

Based on the macrostructure model of text comprehension, the strategy used by readers to abstract the main idea has been characterized by Kieras (1982). He has concluded that in a main idea task the reader expresses in a statement of the main idea the central macrostructure for the passage and he has proposed a model for the strategy used. Most readers use a simple strategy matched to the organizational structure of the passage where each sentence is 'subsumed' under the main idea. In using the 'subsuming' strategy a reader tests the first sentence to see if it expresses a reasonable main idea. If the first sentence is general, it is adopted as a probable main idea and the reader tries to

fit or subsume each succeeding sentence into the main idea based on whether the sentence is related or irrelevant to the main idea. If, at some point, the reader is unable to fit the sentences into the probable main idea, revisions of the main idea are considered and/or carried out. Governing the above strategy is the reader's underlying schema for generalization of passages, the use made of prior knowledge about the overall organization of passages and how to process them, and this allows the reader to accept irrelevant sentences and still arrive at a generalization or main idea.

Similarly, in a number of studies that have examined the recognition and recall of main ideas in text, text structure or organization has played a dominant role. The clarity and coherence of text was found to contribute to better ability to write the main ideas for expository prose. For example, a topic sentence at the beginning of a paragraph rather than when it was embedded or deleted made the identification of the main idea easier. Also, when topics are ordered systematically or a good topic organization is stated in the opening paragraph text comprehension is facilitated. (Kieras, 1982; Lorch and Lorch, 1985). It has also been suggested that the number of details elaborating the main ideas in text improves the recognition and recall of major propositions (Phifer, McNickles, Ronning, and Glover, 1983). In a similar vein, it has been proposed that the identification of main ideas is facilitated if readers are made aware that main ideas and their supporting details occur in recognizable patterns that exemplify superordinate/subordinate relationships (Pearson and Johnson, 1978; Meyer, Brandt and Bluth, 1980; Hare and Mulligan, 1984; Slater, Graves and Piche, 1985; Memory, 1983).

Finally, it has been proposed that as Van Dijk (1979) pointed out, the recognition and use of objective textual cues to the relevant information in a text contributes to the identification of the important ideas in a text

and their interrelations. Textual cuing systems may include graphic, lexical and semantic components. Some examples of relevant cues are signal words (non-content words that emphasize the structure or organization of the passage); headings, sub-sections, topic sentences, redundancies and directly stated statements of importance; and the author's intrusion into the text by directing, rather than informing, the reader's attention. (Winograd, 1984; Garner and McCaleb, 1985).

Another line of research has investigated summarization ability and a number of component skills and strategies have been identified as implicated in the ability to summarize a text. These include the ability to use a set of decision rules for summarizing texts, the ability to identify important ideas in texts, and the ability to integrate separate ideas into larger units. The recent research literature has clarified the nature of the deficiencies in the performance of learners of various ages in generating short summaries and has provided some useful information relevant to higher order reading comprehension problems and writing difficulties.

Brown and Day (1983) have shown that the rules used by readers in summarizing texts follow the model explicated by Kintsch and Van Dijk (1978). They have described six basic summarization rules. These are (1) delete unnecessary or trivial information, (2) delete information that is important but is also redundant; (3) substitute a superordinate term for a list of items,(e.g. the word, pets, can be substituted if a text contains a list such as dogs, cats, goldfish, etc.); (4) substitute a subordinate action for a list of subcomponents of that action (e.g., John went on a trip, for John left the house, he went to the train station, etc.); (5) select a topic sentence; and (6) if there is no topic sentence, invent one. These six rules were found to be the methods used by students when they were summarizing a text; they also appeared to be the rules used by mature high

school students when notetaking and outlining (Brown, 1981).

When Brown and Day (1983) examined the development of these summarization rules, they found that immature writers relied only on a simple, copy-delete strategy while more advanced writers used superordination and then selection, with invention, the most difficult rule, appearing only in the summaries of mature writers. The developmental progression in summarization ability outlined by Brown and Day (1983) has provided information that allows for the identification of those specific operations that may be causing problems for students who are experiencing difficulty with text processing. For example, they found that the rules of selecting and particularly inventing a topic sentence were difficult for novice writers (e.g., younger children and junior college students). They also found that even four year college students were not always able to combine information across paragraphs or to write a paragraph summary when the topic sentence was not explicit.

Similar developmental differences have been reported in other studies. Children have been found to make minimal use of superordination, have difficulty in integrating information and appear unable to reduce a text to its gist unless they are constrained by limiting the number of words they are permitted to use (Brown, Campione and Day, 1981; Brown, Day and Jones, 1983). Among older learners, low invention of topic sentences, low inclusion of important ideas and minimal integration of information units have been observed (Hare and Barchardt, 1984; Garner and McCaleb, 1985; Garner, 1985).

In a study that compared the strategies used by eighth-grade high and low ability readers on a summarization task, Winograd (1984) has reported a number of important differences between the two groups. While most students in both groups were aware that a summary should include the important ideas from a reading passage, there were differences among the two groups as to the kinds of information they chose as important. The fluent readers were

sensitive to text structure and were able to identify what was important based on the use of textual cues, while poor readers chose as important information based on contextual cues, that is, information that was of high personal interest. Also, the poor readers' choices of what was important to include in their summaries was adversely affected by serial position of the information. In other words, the poorer readers appeared to be making decisions about what to include in their summaries by using an additive strategy, that is on a sentence-by-sentence basis, whereas the good readers made their decisions based upon the meaning of the whole text. Another interesting finding concerning the ability to identify important ideas was that this ability was also related to reading comprehension ability and, therefore, sensitivity to important ideas may be an important strategy underlying both summarization and comprehension. The findings also have indicated that, although good and poor readers did not differ in the number of words they used in their summaries, the poor readers had difficulty in integrating separate propositions or idea units into larger units and that this ability was more relevant to the task of summarizing than to the comprehension process. The major conclusions that can be drawn from these findings are that, although poor readers are aware of the need to include important ideas in a summary, they, not only have difficulty in identifying important ideas in a reading passage and, therefore, in constructing an internal topic structure representation of the text information, but that they also have difficulty with the strategic skills required to produce an adequate summary.

Similar findings have been reported in studies of the summarization skills of high school and college-age students. In a training study of summarization skills with high school juniors based on the work of Brown and Day (1983), Hare and Barchardt, (1984) have reported that, although

procedures providing for direct instruction improved the students' use of summarization rules and improved the quality of their written summaries, the instruction did not improve their ability to identify implicit main ideas or to construct an outline, a transfer task. They have concluded that students' poor ability in these areas was related to an inability to identify or an insensitivity to important text information. Also, Garner (1985) in a study that examined summarization abilities of 9th grade, 11th grade and college-age students has found that, although most of the students were aware of the need to include important ideas from a text in a summary, the high school students were deficient in the number of important ideas they included in their written summaries. Another important finding was that, across age levels, there was evidence of a deficiency in both awareness of, and the ability to integrate information and produce succint summaries of important information with a minimum number of words.

In a training study that examined the effects of instruction and practice in a hierarchical summary procedure on seventh grade students reading and writing skills, Taylor and Beach (1984) have shown that a summary procedure which focused on the organization of text structure may directly improve students' recall of unfamiliar expository text as well as indirectly improve the quality of students' expository compositions. Based on the findings of their study, they have concluded that, although the hierrarchical summarization procedure, which involved students' outlining of text, did not improve students' recall for familiar social studies material as compared to answering questions, the procedure may be useful for the processing of unfamiliar text, because it provides the reader with a series of steps to follow in order to help them form a macrostructure, or internal representation, of the important ideas in the text. Of equal importance, however, was the support provided, by the results of this study, for the reciprocal nature

of reading and writing tasks, in that, awareness of text structure influenced students' skill in writing. The finding of improvement of overall writing ability has suggested that attention directed to the organization of text structure in students' reading of expository text, coupled with practice in writing structured summaries may have enabled them to better organize their own expository writing.

The abilities to comprehend and formulate expository writing are essential for the LD secondary student's success in secondary and post-secondary education settings. Students must not only be able to comprehend expository materials across a range of subject areas, but they must also be able to formulate coherent, well-organized expository essays or compositions. It has been proposed that the concepts derived from current work in text processing can provide guidelines for the improvement of instructional practice in reading and writing for LD secondary students.

The research in text processing has suggested that active learning from text involves a dynamic, interactive repertoire of activities that fosters the development of comprehension and production abilities as well as the development of salient metacognitive comprehension and production monitoring strategies. The macrostructure model of text processing has provided a framework for two important lines of research; studies that have examined the role of topic structure and the interrelations among a text's main topics, and studies that have investigated the component skills and strategies involved in summarization.

Factors affecting the ability to recognize main topics and to attend to salient text information relevant to identification of topic structure as well as the strategy used by readers to identify the main idea in text have been reviewed. Similarly, the recent research which has investigated

summarization ability has also been outlined. This line of research has clarified the method used by students in summarizing texts as well as the developmental differences in the performance of learners of different ages in generating summaries, and has provided information useful for understanding reading comprehension problems and writing difficulties.

Finally, the results of two training studies that have been based on text-processing theory and have had a positive effect on students' comprehension and recall of text as well as the quality of students' expository writing have been described. These studies have demonstrated that procedures that provide for direct instruction and include demonstrations of why, when and how students should perform a task are superior to more traditional instructional practices such as practice, assessment and more practice. Also approaches that develop students' awareness of their own strategies and help students acquire self-monitoring techniques facilitate learning from text. While these procedures have been found to have a positive effect on students' comprehension and recall of text, they also appear to improve the quality of students' expository writing (Taylor and Beach, 1984 ; Campione and Armbruster, 1986; Hare and Barchardt, 1984).

The concepts derived from current theories and research in text processing as well as the direct instruction procedures outlined in text processing training studies have major practical implications for the design and development of instructional programs for LD secondary learners. Instructional programs based on these concepts have the potential for improving both the comprehension and recall of expository material and the quality of expository writing for LD secondary students and, thus, enhance their opportunities for success in academic settings.

References

Alley, G.R., Deshler, D.D., and Warner, M.M. (1979). Identification of learning disabled adolescents. Learning Disability Quarterly, 2, 76-83.

Baumann, J.F. (1982). Research on children's main idea comprehension: A problem of ecological validity. Reading Psychology, 3, 167-177.

Bereiter, C. (1980). Development in writing. In L. Gregg and E. Steinberg (Eds.) Cognitive Processes in Writing. Hillsdale, N.J.: L. Erlbaum.

Brown, A.L. (1981). Metacognition and reading and writing: The development and facilitation of selective attention strategies for learning from texts. In M.L. Kamil (Ed.), Directions in Reading: Research and Instruction. Washington, D.C.: The National Reading Conference.

Brown, A.L. and Day, J.D. (1983). Macrorules for summarizing texts: The development of expertise. Journal of Verbal Learning and Verbal Behavior, 22, 1-14.

Brown, A.L., Campione, J.C., and Day, J.D. (1981). Learning to learn: On training students to learn from text. Educational Researcher, 10, 14-21.

Brown, A.L., Day, J.D., and Jones, R.S. (1983). The development of plans for summarizing texts. Child Development, 54, 968-979.

Campione, J.C., and Armbruster, B.B. (1985). Acquiring information from text. In S. Clupman, J. Segal and R. Glaser (Eds.), Cognitive Skills and Instruction. Hillsdale, N.J.: Erlbaum.

Campione, J.C., and Armbruster, B.B. (1986). Acquiring information from texts: An analysis of four approaches. In S. Chipman, J. Segal, and H. Glaser (Eds.), Thinking and Learning Skils: Relating Instruction to Basic Research. Hillsdale, N.J.: Erlbaum.

Carlson, T.G., Alley, G.R. (1981). Performance and Competence of Learning Disabled and High-Achieving High School Students on Essential Cognitive Skills, (Research Report No.53). Lawrence, Kansas: University of Kansas Institute for Research in Learning Disabilities.

Deshler, D.D., Lowrey, N., and Alley, G.R. (1979). Programming alternatives for learning disabled adolescents. Academic Therapy, 14, 54-63.

Dunn, A. and Bridwell, L. (1980). Discourse Competence: Evidence for Written Products, Reading and Composing Processes. Paper presented at National Council of Teachers of English annual meeting, Cincinnati, Ohio.

Flower, L.S., and Hayes, J.R. (1980). The dynamics of composing: Making plans and juggling constraints. In L. Gregg and E. Steinberg (Eds.), Cognitive Processes in Writing. Hillsdale, N.J.: Erlbaum

Garner, R. (1985). Text summarization deficiencies among older students: Awareness or production ability? American Educational Research Journal, 22, 549-560.

Garner, R., and McCaleb, J.L. (1985). Effects of text manipulations on quality of written summaries. Contemporary Educational Psychology, 10, 139-149.

Hare, V.C., and Borchardt, K.M. (1984). Direct instruction of summarization skills. Reading Research Quarterly, 20, 62-78.

Hare, V.C., and Mulligan, B. (1984). Main idea indentification: Instructional explanations in four basal reader series. Journal of Reading Behavior, 16, 189-204.

Kintsch, W., and van Dijk, T.A. (1978). Toward a model of text comprehension and production. Psychological Review, 85, 363-394.

Lorch, R.F., and Lorch, E.P. (1985). Topic structure representation and text recall. Journal of Educational Psychology, 2, 137-148.

Memory, D.M. (1983). Main idea prequestions as adjunct aids with good and low-average middle grade readers. Journal of Reading Behavior, 15, 37-48.

Meyer, B.J. Brandt, D.M., and Bluth, G.J. (1980). Use of top-level structure in text. Key for reading comprehension of ninth-grade students. Reading Research Quarterly, 16, 72-103.

Miller, J.R., and Kintsch, W. (1980). Readability and the recall of short prose passages: A theoretical analysis. Journal of Experimental Psychology, 16, 335-354.

Pearson, P.D., and Johnson, D.D. (1978). Teaching Reading Comprehension. New York: Halt, Rinehart and Winston.

Reid, D.K., and Hresko, W.P. (1981). A Cognitive Approach in Learning Disabilities. New York: McGraw-Hill.

Schumaker, J.B., Deshler, D.D., Alley, G.R., and Warner, M.M. (1983). Toward the development of an intervention model for learning disabled adolescents. Exceptional Education Quarterly, 4, 45-74.

Slater, W.H., Graves, M.F., and Piche, G.L. (1985). Effects of structural organizers on ninth-grade students' comprehension and recall of five patterns of expository text. Reading Research Quarterly, 20, 189-202.

Taylor, B.M., and Beach, R.W. (1982). The Effects of Text Structure Instruction on Middle-grade Students Comprehension and Production of Expository Text. Unpublished paper, University of Minnesota, Minneapolis.

van Dijk, T.A. (1979). Relevance assignment in discourse comprehension. Discourse Processes, 2, 113-126.

Williams, J.P., and Taylor, M.B. (1984). Constructing macrostructure for expository text. Journal of Educational Psychology, 76, 1065-1075.

Winograd, P. (1984). Strategic difficulties in summarizing texts. Reading Research Quarterly, 21, 404-425.

Zigmond, N., Sansone, J., Miller, S.E., Donahue, K.A., and Kohnke, R. (1986). Teaching Learning Disabled Students at the Secondary Level. Preston, Virginia: Council for Exceptional Children.